

Daily GLOWBUGS

Digest: V1 #87

via AB4EL Web Digests @ SunSITE

Purpose: building and operating vacuum tube-based QRP rigs

[AB4EL Ham Radio Homepage @ SunSITE](#)

%%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%%

Subject: glowbugs v1 #87

glowbugs **Wednesday, August 6 1997**

Volume 01 : Number 087

Date: Tue, 5 Aug 1997 15:47:32 +0000

From: Sandy W5TVW <ebjr@worldnet.att.net>

Subject: Re: Regen coupling

At 02:08 PM 8/5/97 +0000, you wrote:

>Ok gang, a question,

> I've been fussing with my GR-81 Heathkit regen, doing some various
> mods. The heathkit has an option for either magnetic coupling of the
> antenna or capacitive. I have fussed with the coupling cap, going from a
> 12pf mica to a 3 turn gimmick (about 3 pf) with good results. In all this I
> have found that sometimes the magnetic coupling works better than the
> capacitive, and other conditions the capacitive does, all with the same
> antenna. The capacitive coupling certainly does better as far as the
> swinging antenna syndrome is concerned. So the question is, which do you all
> feel is better and that I should pursue more? My present thinking is the
> capacitive, perhaps with a variable so I can tweak it. What you all think?

>vy 73

>Mike WA6ARA

>

>

>I think you will find whichever "coupling" system you use, a "loose" system
will generally turn out to be best!

The preference to magnetic or capacitive coupling? Depends on the antenna
being used. The degree of coupling should also be dictated by band
conditions and

the number of stations on. If the band is dead or conditions are poor, tighter
coupling can be used. When the band is loaded and signals are strong,
looser coupling is called for. The object is to keep it as loose as
possible commensurate

with good reception. Regens are notorious for poor dynamic range. Once
this is understood, you'll enjoy using them more. A simple low gain RF
stage will usually

take care of the "swinging antenna syndrome", and also limit receiver radiation,
but sometimes is not worth the bother. Nothing can be as cantankerous as a
regen to get going properly, in spite of its simplicity! Nothing will give
you so

much for so little in a vacuum tube receiver!

73,

E. V. Sandy Blaize, W5TVW

"Boat Anchors collected, restored, repaired, traded and used!"

417 Ridgewood Drive,

Metairie, LA., 70001

ebjr@worldnet.att.net

****Looking for: 860 tubes, WL-460 tubes****
****RK-34(VT-224) tubes, Butternut HF2V antenna****

Date: Tue, 5 Aug 1997 09:06:32 -0700 (MST)
From: Jeff Duntemann <jeffd@coriolis.com>
Subject: Re: HW-101 ...weak tubes?

>--Every few minutes, the receiver output begins to fade away,
> dropping to complete silence within a few seconds. Changing
> the mode switch to another mode and back will usually restore
> normal operation (normal for this receiver, anyway)..

It may not be the tubes at all. I had a shortwave set do this to me once,
and I found an open bias resistor which was the only DC path away from the
control grid. Absent a DC path to ground, charge builds up on the grid and
blocks amplification. Check any resistors acting as sole DC path to
control grids in any stage.

Other things can cause this symptom, obviously, but that's one I saw on the
bench myself.

- --73--

- --Jeff Duntemann KG7JF
Scottsdale, Arizona

Date: Tue, 5 Aug 1997 12:33:23 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: Regen coupling

>
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> mods. The heathkit has an option for either magnetic coupling of the
> antenna or capacitive. I have fussed with the coupling cap, going from a
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> feel is better and that I should pursue more? My present thinking is the
> capacitive, perhaps with a variable so I can tweak it. What you all think?
> vy 73
> Mike WA6ARA

Hello glowbuggeites..... I am not gone, but just AWFULLY busy the past/next
few weeks.... oh well.... but, I could not resist a pfennigs worth on this.

1. If I have my druthers, I prefer a single turn like swinging or variably
loose coupled.
2. Secondly, the capacitive method is good as long as the value is as low
as you can go, and still get acceptable audio output --- i.e., the
minimum possible for any given signal or receiving condition.

For a variable cap, I use a small single plate cap of around 7 pf max
and reduce it down from that.

Swinging antenna syndrome is the indicator of overcoupling. Thus, if that
occurs, regardless of the method of coupling --- reduce coupling to an
appropriately lower level.

On my best regen receivers, I make provisions for BOTH methods and a little binding post for each. It is quick to change, appropriately.

Generally, the inductively coupled grounded antenna, seems to give less background noise and static problems, in my hands, while the directly coupled (capacitive) method is more prone to static and local AM crossmod. But, that may depend upon antenna feed impedances too.

Good LUCK, and glad you are having success with your regeneratorglowenbox!

73/ZUT DE NA4G/Bob UP

Date: Tue, 05 Aug 1997 14:11:09 -0600
From: Jack Harper <jharper@bs2000.com>
Subject: Re: HW-101 ...weak tubes?

At 09:06 8/5/97 -0700, you wrote:

>
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>> dropping to complete silence within a few seconds. Changing
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>and I found an open bias resistor which was the only DC path away from the
>control grid. Absent a DC path to ground, charge builds up on the grid and
>blocks amplification. Check any resistors acting as sole DC path to
>control grids in any stage.
>
><snip>
>
>--Jeff Duntemann KG7JF
> Scottsdale, Arizona
>

It would be good to know if the fading is temperature sensitive -- does it do that right at power up or after it has been on awhile... If it starts doing it after the rig has been on for awhile, it could easily be as Jeff suggests -- but intermittent/heat sensitive...

Good luck in finding the fault.

Regards to all

Jack, KC0LR (Friend to all things Hammarlund)

Jack Harper
303-277-1892

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Date: Tue, 5 Aug 1997 19:41:22 -0400 (EDT)
From: leeboo@ct.net (Leon Wiltsey)
Subject: FIRST QSO

>To:gb

>From: leeboo@ct.net (Leon Wiltsey)
>Subject: FIRST QSO
>Cc:
>Bcc:
>X-Attachments:
>
>Hi gang
>
>Well I finally did it. checked my ant and found it a bit short so added
>8 in to each end and got on the air. noooooooooooooooooo luck at all
>Walt Peterson read one of my sad story posts and called me on the land line
>and we set up a sched. Now walt lives in Deland Fl. which is abt 100
>air miles right off the north end of my dipole. I got on last nite running
>abt 50
> watts to the dipole which just clears the roof of my one story house, and
>back he
>came giving me a 589 he was running a kw and came in good here over the bad
>powerline noise I have. Gunna call the power co abt it. I was so nervous I
>could hardly send. after we quit he called me on the phone and we talked,
>he said I had a good clean sig and not to bother putting a voltage reg tube
>in the osc b+ cir. as I had no chirp. Walt is a great guy and I really
>appreciated
>his help. As soon as the 5 xtals I ordered from the net arrive I am going to
>be back on agn, only have 2 now 3703 and 3650.Well thats it, boy such
>excitement
>havnt had so much fun in years. Going on vacation this weekend when I get
>back
>going to try to get on 6 meters and maybe 2 also. 73 73 73
>
THANK THE LORD FOR ALL YOU HAVE

68 yr old semidisabled senior
(stroke got my balance & hand to eye coordination)
ham agn as KF4RCL TECK+ (MUCH HAPPINESS)
BUILD MOST OF MY STATION EQUIP
SUB.BA & GB-- NO SOLID STATE

Leon B Wiltsey (Lee)
4600 Lake Haven BLVD.
Sebring, Fl. 33872

SEBRING FL. WHERE THERE IS NO QRM THE LOCALS

Date: Tue, 05 Aug 1997 15:42:01 -0700
From: Walt Turansky <turansky@xroads.com>
Subject: 813's

Folks

The 112 degree temps in PHX today must have addled my brain because I've been thinking of what to do with some 813's that I have sitting in the garage.

Bob's postings of a few weeks ago about "Big Bertha" and your postings about a single tube type transmitter of a few months ago must have lodged in my sub-conscious. I've got the notion to build a "Barracks Bag VFO" with a loafing 813 and have it drive a pair of 813's in push-pull with 1500 volts on the plates.

I'm interested to see if anyone has comments on whether to link couple or capacitively couple the ECO to the amp and whether to use link or pi-net coupling in the output of the amp.

I'm primarily interested in 80 meters so I think I can drive the P-P 813's directly but maybe I should include a buffer/doubler stage for stability

and 40 meter capability. Any comments?

73 de N7QFN,
Walt

Date: Tue, 5 Aug 1997 22:04:52 -0400
From: "Barry L. Ornitz" <ornitz@tricon.net>
Subject: Dielectric Properties of Hot Melt Adhesives

Jeff Duntemann (jeffdd@coriolis.com) asked about the RF dielectric properties of hot melt adhesives. This is an interesting question since there are so many types of hot melt adhesives. Most are based on ethylene-vinyl acetate copolymers. These tend to be rather lossy at RF. However, the common "glue sticks" available to consumers for use with handheld melt guns are a different composition. These are generally a mixture of polyethylene, paraffin wax, and atactic polypropylene. This mixture melts at a fairly low temperature but its RF losses are low.

If you glue a coil with any adhesive, remember that the adhesive will increase the capacitance between the turns of the coil. Thus it will always lower the frequency.
If the adhesive has a high dielectric loss, it will lower the Q of the coil significantly.
If much RF power is involved with a high loss dielectric, the material will heat.

The microwave oven test that another poster suggested is useful only for very gross approximations. I can think of many materials that are fairly transparent to microwaves but absorb energy at lower frequencies. [And remember that the frequencies used by both home and industrial microwave ovens have absolutely NOTHING to do with any resonant frequencies of water molecules.]

73, Barry L. Ornitz WA4VZQ ornitz@tricon.net

Date: Wed, 06 Aug 1997 07:58:14 -0500
From: Conard Murray <cfm5723@tntech.edu>
Subject: Re: 813's

Hi Walt,
The P-P 813's sound like a nice project. You will need to use link coupling for the output stage if you are going to use P-P though. I like link coupling in all departments except trying to change bands I suppose that a bandswitched link-coupled affair could be worked out but it would be mechanically more than I would want to fool with.
I would ask Bob if he can provide some details regarding Bertha's circuit and try to duplicate that as close as possible.
Keep us posted!
73 and ZUT!,
Conard WS4S

Date: Wed, 6 Aug 1997 10:20:56 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: 813's

>
> Folks
>

> The 112 degree temps in PHX today must have addled my brain because I've
> been thinking of what to do with some 813's that I have sitting in the garage.

Well..... that is a cold snap for dear ole Phoenix.....(:+)}.....

> Bob's postings of a few weeks ago about "Big Bertha" and your postings
> about a single tube type transmitter of a few months ago must have lodged
> in my sub-conscious. I've got the notion to build a "Barracks Bag VFO" with
> a loafing 813 and have it drive a pair of 813's in push-pull with 1500
> volts on the plates.

Gee, glad to get some thought stimulated.....

> I'm interested to see if anyone has comments on whether to link couple or
> capacitively couple the ECO to the amp and whether to use link or pi-net
> coupling in the output of the amp.

For anything practical, I would suggest that you stick to a pinet with
a L section added or a series LC section added to make it top notch.

Practical considerations for *Harmonicitis rejectus bigberthaie*
on 80 meters would be something like a 200pf input cap, a 30 turn 2 inch
diameter coil of no. 8 or 10 wire with about 6-8 turns per inch.
A second coil equally sized is appropriate for the L or LC section.
You can use 1/8 or 3/16 inch copper tubing or even 1/4 inch if you add
sufficient turns and spacing and size to suit the approximate inductance
required to make the basic input capacitor and coil tune to 80M with about
1/2 to 3/4 of the input variable meshed at full loading output power.
The pi-loading cap should be around 1000-1500pf and a fixed capacitor
is fine (I will explain in a minute). There is absolutely no need for
a variable output cap on a pinet if properly done with a series LC added
section. Use the series LC output from the pinet loading cap to provide
the output tuning and loading. In 20 years of running Big Bertha, I have
yet to unmesh her pinet output capacitor in normal use, and I still get
200 watts out of her at 1200 volts input.

Basically what you are doing is providing a low impedance point with the
fixed capacitor and that gives about a 10 ohm point (give or take some).
Then you use a series coil and capacitor tuned to the frequency in use
to upconvert the impedance from 10 ohms to 50 ohms or 70 ohms or 90 ohms
or whatever in the coaxy range. If you want high impedance output, then
take the antenna off the series LC midpoint and ground the C output.

Dip the plates, resonate the LC and you are tuned to max output regardless
of any ``swr''. Swr meters are not needed and only a FS meter for output
resonance indication is needed. This basic design hails from the marine
transmitter era of the late 30's and has always worked fine in my hands.
It does not need coax, or swr bridges, and can load the bedsprings or any
wire you can muster. If you choose to run a high impedance feed, you may
get rf in the shack, but that does not bother real radios.

> I'm primarily interested in 80 meters so I think I can drive the P-P 813's
> directly but maybe I should include a buffer/doubler stage for stability
> and 40 meter capability. Any comments?

I would run it with an 813 oscillator at about 30 watts input (that is
about 300-400 volts on the plate) an 813 buffer/driver (with about 500-600
volts on the plate) and a pair of 813's paralleled in the output with
1500 volts on the plates. Use a SINGLE HV power supply of 1500 volts
rated at about 1 amp or so under load. Drop ALL screens and osc/buf
plates from the HV line with dropping resistors (sufficient 25-50 watters
of appropriate resistance to provide the voltages an regulation needed).
Because the 813 driver is going to overpower the thing, you need to
have a swamping resistance in the final grids to load it down some, or
uncouple and swamp. The finals will not usually require neutralization
if you have designed the shielding well, but, it is always a good idea
to check for tennesseevalleyinjuns.

Key all stages in the B- line or the cathodes. Use a thump filter to get appropriate lag. A 500 ohm resistor and 1 ufd or so capacitor across the key cathode line works. USE A RELAY to key the beast! There can be a couple of hundred volts across the cathode lines if you don't.

The power supply is entirely non-critical. I use a 900/1200/1500v 1 amp monster transformer about a foot cubed, a 10h choke, and an couple of 8ufd 4000v caps in brute force pinet filer configuration. A variac is used on the primary to adjust Bertha from 25 watts to 500 watts on the fly. Each stage needs it own filament transformer, centertapped to ground or the keying line.

Big Bertha uses an 807 oscillator and an 807 driver, which is fine for 160/80/40M, but marginal above that. Your set would probably have sufficient drive to maybe get onto 20M, but probably no higher without another stage. The later marine sets added one or two more 807 style stages for multiplier output up to the highest marine bands. Big Bertha was the ancestor rig that started the design trend using 813's back in 1937, but the basic design has worked fine for 60 years.

> 73 de N7QFN,
> Walt

Good Luck

73/ZUT DE NA4G/Bob UP

Date: Wed, 06 Aug 1997 09:21:24 -0700
From: "Max " <max.p@mailcity.com>
Subject: Re: 813's

This is a multi-part message in MIME format.
You need a MIME compliant mail reader to completely decode it.

- ==_==_BIGNCFPNFKDPAAAA
Content-Type: text/plain; charset=us-ascii
Content-Length: 1138
Content-Transfer-Encoding: 7bit

I can't seem to get off this list, can somebody get me off this thing?

=====

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>Walt
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- ==_=_-BIGNCFPNFKDPAAAA
Precedence: bulk
Mime-Version: 1.0
Received: by karishma.com. (SMI-8.6/SMI-SVR4)
id TAA00348; Tue, 5 Aug 1997 19:44:44 -0400
From: Walt Turansky <turansky@xroads.com>
Date: Tue, 05 Aug 1997 15:42:01 -0700
Sender: owner-glowbugs@www.atl.org
Subject: 813's
X-Mailer: QUALCOMM Windows Eudora Light Version 3.0.2 (32)
X-Sender: turansky@mail.xroads.com
Message-Id: <3.0.2.32.19970805154201.00704784@mail.xroads.com>
To: glowbugs@www.atl.org
Content-Type: text/plain; charset=us-ascii
Content-Length: 864
Content-Transfer-Encoding: 7bit

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73 de N7QFN,
Walt
- ==_=_-BIGNCFPNFKDPAAAA--

End of glowbugs V1 #87

%%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%%

[AB4EL Ham Radio Homepage @ SunSITE](#)

Created by **Steve Modena, AB4EL**
Comments and suggestions to modena@SunSITE.unc.edu
